DEAS 1114:2022

ICS 65.100.10

DRAFT EAST AFRICAN STANDARD

Insecticidal aerosol — Specification

EAST AFRICAN COMMUNITY

First Edition 2022

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 069, *Organic and Inorganic chemicals.*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

Insecticidal aerosol — Specification

1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for Insecticidal aerosol.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this standard, the following and terms definitions shall apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1 biological efficacy

measure of the performance and efficiency of an insecticidal aerosol against insects

3.2 insecticidal aerosol

pressurized dispenser consisting of a liquid insecticidal product which is effective on contact with insects when it is applied into the air/and surface in the form of aerosol

3.3 knockdown

state of intoxication and paralysis of insects which usually precedes death

3.4 mortality

inducement of death to insects by the application of insecticide.

NOTE – mortality value is based on a combination of dead and moribund insects over the total number of insects initially released into the test chamber.

3.5 propellants

inert gases used to discharge the product as an aerosol from the container.

3.6 synergists

chemical compounds that inhibit the breakdown and enhance the biological activity of, pyrethrins, pyrethroid(s) or any other suitable compounds approved by relevant authority for pest control.

4 Requirements

4.1 General requirements

4.1.1 An insecticidal aerosol shall be a solution or emulsion of insecticides dissolved or emulsified essentially in a suitable solvent with the addition of propellants, deodorants or perfumes antioxidants and synergists, as may be required.

4.1.2 The insecticidal aerosol shall be non-staining and light-coloured liquid with no unpleasant odour when sprayed.

4.1.3 The insecticidal aerosol shall be formulated from the following:

a) Essential Active Ingredients — Pyrethrins or synthetic pyrethroids with low mammalian toxicity and/or

b) Any other effective pest control product with low residual effect and without unacceptable risks posed to mammals subjected to continuous inhalation of that product.”

4.1.4 Only active ingredients approved by the responsible national authority shall be used in the formulation of insecticidal aerosol.

4.1.5 The ingredients of the insecticidal aerosol formulation shall be compatible with one another. The solvent or diluents shall be inert and shall have no damaging effect on the gaskets, dispensers discharge button and/or the spray-through cap under normal use.

4.1.6 An Insecticidal aerosol shall not contain CFCs (chlorofluorocarbon).

4.2 Specific requirements

4.2.1 Insecticidal aerosol shall comply with requirement specified in Table 1 and 2 when tested in accordance with method prescribed therein.

Table 1: Biological efficacy for insecticidal aerosol

S/N	Characteristic		Requirements			Test method
			Flying insects	Crawling insects	Multipurpose	
i)	Knockdown, %, minimum	10 min	50	-	50	Annex A
		30 min	-	50	-	
ii)	Mortality, %, minimum	24h	95	55	95	
		48h	-	75	-	

Table 2: Other specific requirements for Insecticidal aerosol

S/N	Characteristic		Requirements	Test method
i)	Delivery rate at 26 °C ± 2 °C, g/s		3.0	Annex B
ii)	Leakage		To pass test	Annex C
iii)	Particle size, µm	flying insects	20 – 25	Annex D
		crawling insects	40 – 60	
		multipurpose insects	20 - 60	
iv)	Internal pressure of the filled dispenser at 26 °C ± 2 °C, kPa, max		600	Annex E
v)	Clogging of dispenser valve		To pass test	Annex F

4.2.2 The active ingredient content shall be declared on the labels and shall comply with the tolerance limits given in the Table 3.

Table 3 — Tolerance limits

S/N	Declared active ingredient in %, w/w	Tolerance range in %
i)	Less than 2.5	± 15
ii)	2.5 to less than 10	± 10
iii)	10 to less than 25	± 06
iv)	25 to less than 50	± 05
v)	Above 50%	± 2.5

5 Packaging

5.1 An insecticidal aerosol shall be packaged in securely closed suitable containers that protects its quality.

5.2 The valve of an insecticidal aerosol package shall be:

a) protected against puncturing/activation by a suitable protective cap and/or seal made of a material which does not react with the product."
b) hermetically sealed at the base;
c) fitted with a discharge button or spray cap; and
d) the valve and button shall be constructed by the materials which cannot be affected by the formulation

6 Labelling

Each package shall be legibly and indelibly labelled in English and/or any other official language (French, Kiswahili, etc) used in the importing East African Partner State with the following information:

a) name of the product as “Insecticidal aerosol”

b) an indication of; “Flying insects” or “Crawling insects” or “Multipurpose”

c) common name of active ingredient(s) and its percentage in the composition

d) manufacturer’s name and physical address;

e) net contents;

f) country of origin;

g) batch number or lot number;

h) Inert ingredients

i) date of manufacture and expiry date;

j) directions for use, storage and disposal;

k) cautions for safety; signal words, hazard pictogram, precaution statement, and hazard statement

l) the words 'highly flammable', 'flammable' or 'non-flammable' shall be appropriately labelled.

7 Sampling

7.1 Sampling shall be done in accordance with annex G

7.2 A sampling plan for the operation of various certification schemes shall be the subject of a separate agreement between the manufacturer and the certification body.

Annex A

(normative)

Methods of knockdown and mortality rate of insecticidal aerosols

A.1 General

The knockdown and mortality of insects by insecticidal aerosols for flying insects and crawling insects will be tested in accordance with A.3. and A.4 respectively. For multipurpose insecticidal aerosols, both methods A.3 and A.3 will be tested.

A.2 Outline of the method

The candidate aerosol is compared with a standard aerosol containing 0.3 % pure pyrethrins extract in kerosene.

A.3 Test against flying insects (houseflies)

A.3.1 Rearing of test insects

The test insects shall be adult *Musca domestica* L of a non-resistant (i.e., a strain with no record of previous exposure to insecticide), 4-6 days old at the time of test; they shall be from a recognized source and shall be checked for their knock-down susceptibility to pyrethrins at 27 °C ± 2 °C and at a relative humidity of 65 % ± 2 %. The insectary may be illuminated, for maximum egg production, by fluorescent tubes for 12 h daily, with a mean luminance of approximately 108 lux (107.64 lumen/m).

Parent flies shall be housed in cages covered with wire gauze of approximately 10 mesh and 0.06 mm (23 SWG), or other suitable material. Parent flies shall be destroyed and new cultures started every 14 days with 21 000 - 25 000 pupae/m^3 of cage. Flies shall be provided with solid sugar and a mixture of equal parts of cow's milk and water containing one part in 2000 of 400 g/l solution of formaldehyde, as a preservative; a shallow container of fresh larval medium shall be added daily for oviposition.

Suitable larval medium, which should be prepared daily, is as follows:

Material	Percentage by mass
Wheat bran	24
Grass meal	6
Baker's yeast suspension	0.8
Soya flour	2.0
Malt extract with cod-liver oil B.P	3.0
Water	64.2

(The yeast suspension may be prepared by dispersing 230 g of yeast in 1 L of water. The mixture may be stored at 0°C and used as required),

Eggs may conveniently be separated by floatation with water and added by pipette to the medium at a rate of approximately 0.1 ml, or 400 eggs, per 300 g of fresh larval medium, stored in suitable containers and covered with fine muslin.

Pupation occurs in the surface layers. They may be removed 8 days after seeding, spread on trays and dried in a current of air.

After separation from the medium by winnowing, pupae shall be placed in bags or cages with 17 500 - 21 000 pupae/0.5m^3. A check on pupal mass shall be made. The masses of random samples of 100 pupae, 1-2 days old, shall average between 2.0 g and 2.5 g.

Immediately prior to fly emergence, food shall be supplied and replaced daily. A tube, 76 mm x 25 mm, containing cotton wool soaked in a mixture of equal parts of milk and water, is sufficient to feed approximately 200 flies.

To assess possible resistance to chlorinated hydrocarbon insecticides the vigour of the test insects shall be regularly checked against an aerosol having a concentration of pyrethrins sufficient to give mortalities between 70 % and 90 % at a dosage rate of 1 g / 9.5 m^3.

A.3.2 Aerosol test room

The volume of the aerosol test room shall be not less than 28 m^3 and not greater than 85 m^3 and it shall preferably be between 42.5 m^3 and 56.5 m^3. It shall be of such a shape that deposits do not occur on the walls and ceilings.

Walls and ceilings shall be painted with white paint resistant to solvents, and the floor shall be covered, for each test, with new absorbent paper.

Illumination shall be by fluorescent tubes. They shall be fixed so that the ceiling is illuminated and a mean light intensity of 108 lux (107.64. lumen/m^2) is given when measured 1 m above the floor, uniformly distributed.

The room shall be maintained at a temperature of 27 °C ± 2 °C and a relative humidity of 65 % ± 2 %. Temperature gradients shall be avoided and air conditioning apparatus shall be removed before the commencement of the test or shall be of such a design as will not give rise to convection currents during the test. An exhaust fan or fans, giving an air displacement of not less than 10 m^3 per min shall be used to ventilate the room between tests.

A.3.3 Test method

The test insects, 4-6 days old, shall be conditioned for 16 h - 17 h before test to a light intensity of approximately 215 lux (215.3 lumen/m^2), measured inside the container and held at a temperature of 27 °C ± 2 °C and a relative humidity of 65 % ± 2 %. They shall be given fresh food during this period.

The standard aerosol dispenser shall discharge the formulation as an aerosol, at rate of 1.0 g/s ± 0.2 g/s.

The standard aerosol shall be applied at a dosage rate of 10.6 ± 0.7 g/100 m^3. The aerosol under test shall be applied at the dosage rate recommended by the manufacturer.

The discharge rate of all dispensers shall be determined for each test by weighing before and after use.

The calibrated dispenser shall be continuously discharged as one operator walks down the centre of the long axis of the test room. The dispenser shall not be discharged at a distance of less than 1 m from any surface and shall be moved from side to side. Dispensers, fitted with metering valves and containing concentrated insecticides, shall be operated from several positions in the room.

Two operators, who stay within the room until the conclusion of the test, shall release approximately 500 flies at floor level immediately after discharge of the aerosol and the fly cages shall be removed. Counts of the number of knocked-down flies shall be made by both operators. Each taking one half of the room. Counts shall be made at two-minute intervals up to 10 min, when the room shall be ventilated. Flies still up at this time can be counted more easily than the greater number of paralysed flies. At the end of the exposure period all flies (both flying and knocked-down) shall be collected by gentle suction or other means into suitable containers which can later be effectively cleaned or discarded. Overcrowding shall be avoided.

Immediately after collection, all flies shall be supplied with 50 g/l sugar solution, absorbed on cotton wool in a glass tube, and held for 24 h in a recovery room maintained at a temperature of 27 °C ± 2 °C and a relative humidity of 65 % ± 2 %.

A.3.4 Assessment of efficiency

A.3.4.1 A test series shall consist of at least 6 replicates each, of the standard aerosol and the aerosol under test.

NOTE – Counting should start 2, 4, 6 …….…. minutes after release of the aerosol. With experience, the difference in counting time of individuals becomes insignificant.

A.3.4.2 The percentages of paralyzed flies, obtained from counts in any test, shall be converted to probabilities and plotted against time. From the regression line obtained, the time taken for 50 % knock-down to occur shall be estimated. This figure is called the KD 50. The standard aerosol should give a KD of not less than 5 min and not more than 6 min.

A.3.4.3 The percentage mortality shall be calculated after 24 h. The standard aerosol should give not less than 99.5 % mortality at 24 h.

NOTE – In order to assess the efficiency margin of an aerosol, tests may also be carried out at half the recommended dose rate.

A. 4 Test against crawling insects (cockroaches)

A.4.1 Apparatus

A.4.1.1 Test Insect
The test insects shall be healthy, normal, under-formed adult males of the German cockroach blattella germanica (Linn) recently emerged adult males, e.g., those whose pigmentation is not dark, shall not be used for testing purposes.

A.4.1.2 Rearing room
This room may be of any convenient size constructed so as to be free from strong draughts and maintained at a temperature of 27 °C ± 1 °C and a relative humidity of 30 % to 50 %. It should be separate from the testing room in order to eliminate the possibility of traces of insecticide coming in contact with the test insects. Ventilation should be provided to reduce odour.

A.4.1.3 Testing room
This room may be of any convenient size permitting adequate space for the operator to handle the test efficiently. While tests are being conducted, this room shall be maintained at a temperature of 27 °C ± 1 °C. It is suggested that relative humidity be held between 30 % and 50 %.

A.4.1.4 Spray chamber
The spray chamber shall be a box-like structure of solid material measuring 457 mm wide, 457 mm long and 635 mm to 762 mm in height. The floor of the chamber shall be covered with (13 mm) mesh wire hardware cloth. Suitable guides shall be fastened to the chamber floor to permit the centring of the treatment container directly beneath the nozzle of the spray gun. The top of the chamber shall be open and fitted with suitable braces and mounting for the spray atomizer. The wall of the chamber may be in the form of a sliding door permitting convenient access to the interior of the chamber. The chamber shall rest on a stand placing it at the proper height for convenient operation of the test.

A.4.1.5 Treatment container
The treatment container shall be a screen bottomed container 89 mm in diameter with 76 mm side walls. Sixteen mesh wire screens shall be soldered in place to form the bottom of the container in such a manner that the entire bottom is completely open. Ordinary tin cups of the proper dimensions with handles removed and the solid bottoms replaced by wire screening have been found useful at test containers.

A.4.1.6 Recovery dishes
Glass crystallizing dishes measuring 125 mm in diameter and 65 high shall be employed as recovery cages. The bottoms of the recovery dishes shall not be covered with filter paper or other material. Sixteen mesh wire screens covered may be employed as recovery dish covers during the 48-hour holding period following spray application in order to prevent the entry of wild cockroaches.

A.4.2 Procedure

A.4.2.1 Rearing of test insects

Any suitable method permitting the production of large numbers of the test insects under controlled conditions of temperature and humidity as previously described may be employed. The rearing technique described by Wood bury and Bamhart, which makes use of a brood chamber containing adult females from which large numbers of first instar nymphs may be collected at frequent intervals, has been successfully used in a number of laboratories. All moulded food, dead females and empty egg cases should be removed weekly, wild cockroaches shall not be used and all test insects shall have been reared under uniform conditions.

A.4.2.2 Food

Until the time of testing, the cockroaches shall be provided at 0 times with food and water.

A.4.2.3 Test procedure

Adult male roaches shall be isolated in recovery dishes or other suitable containers form the cultures in groups of 20 by means of a suction device, by anesthetizing them with carbon dioxide gas or any other suitable method which does not injure them. In selecting the test insects every effort shall be made to obtain uniform test groups.

Air shall pass continuously through the atomizer at the prescribed pressure during the entire series of tests. Prior to application of test samples, the gun shall be thoroughly cleaned with a suitable solvent such as acetone and shall be primed with the spray solution to be applied. Spraying of individual test groups shall be affected by bringing an accurately measured amount of the test spray contained in a vial in contact with the atomizer intake tube.

Immediately before spray application the roaches shall be transferred to screen bottomed treatment containers. These containers shall be free from all traces of insecticides and shall have the entire inner wall surface suitably oiled or greased' to prevent the escape of the insects and to confine them to the container floor. The treatment container shall be centred on the spray chamber floor directly below the atomizer nozzle and the spray applied as described above. Prior to spray application the treatment container shall be agitated sufficiently to distribute the test insects uniformly over the container floor. The treatment container shall be removed from the spray chamber 30 s after the start of spray application. The test insects shall be immediately transferred from the treatment container to the recovery dish.

Treated roaches shall be held under rearing room conditions throughout the 48 - hour observation period and shall receive neither food nor water.

The dosage used shall be between 0.5 ml and 0.9 ml of test spray.

The dosage employed shall be the same throughout a given series of tests and shall have a knockdown of not less than 50 % in 24 h and not less than 75 % in 48 h.

A.4.2.4 Evaluation of data

In evaluating a test sample, a minimum of 10 individual test groups shall be run and the average taken. Evaluation of test samples shall be made on the basis of observations taken 30 min, 24 h and 48 h after spray application, at which time the percentage of test insects normal, moribund and dead shall be determined. Any insects showing signs of life but incapable of locomotion shall be considered as moribund.

NOTE – Insects that withstand insecticide treatments shall be destroyed and in no case returned to the stock cultures or employed in further tests.

Annex B

(normative)

Determination of delivery rate of aerosol

B.1 Apparatus

B.1.1 Water-bath, thermostatically controlled and maintained at (26 ± 2) °C with a screen or perforated metal shelf 25 mm above the bottom of the bath.

B.1.2 Balance, 0.01 g scale or any suitable weighing machine.
B.1.3 Stop-watch or electric timer.

B.2 Procedure

B.2.1 Activate the valve for a few seconds, then remove any valve cup impingements, and weight the aerosol to the nearest 0.05 g.
B.2.2 Place the aerosol on the shelf in the water-bath, which is maintained at the test temperature of (26 ± 2) °C. Keep the dispenser in an upright position, space 25 mm apart, and cover with 1 inch of water.

B.2.3 Circulate the water with the mechanical stirrer. Hold for 30 min.

B.2.4 Remove the dispenser, and actuate the valve for a given time (e.g. 10 s), preferably into an exhaust hood.

B.2.5 Dry the aerosol with a clean cloth, and use a blast of compressed air to remove moisture from the mounting cup and aerosol seams.

B.2.6 Re-weigh the aerosol, and compute the mass difference.

B.2.7 Calculate the delivery rate, expressed in grams per second, D using the equation:

$$D = M/t$$

where,

D delivery rate, expressed in grams per second;
M mass loss, expressed in grams; and
t time, expressed in seconds.
For the equation above, t = 10 s.

Annex C

(normative)

Determination of valve leakage

C.1 Method 1: Major leakage

Immerse completely the aerosol product in a hot water bath of temperature (50 ± 5) °C for 3 min. Pressure within the can will gradually build-up to cause the gas to escape through any possible openings. Continuous bubbles will rise to the water surface indicating failure to the major leakage test.

C.2 Method 2: Micro leakage

C.2.1 This test procedure is developed to determine the weight loss of insecticide aerosols, where 12 aerosol products are used to measure the micro leakage rate.

C.2.2 After recording the date and time the test is started, each of the 12 containers is weighed to the nearest milligram. The test containers are then allowed to stand upright for at least 3 days at room temperature (26 ± 2) °C. After this period, the date and time are again recorded and containers are re-weighed.

C.2.3 Calculated the leakage rate using the equation:

Leakage rate/yr = $(w_1 - w_2)\left(\frac{365}{t}\right)$

where,

w_1 is the gross weight, expressed in grams, before test;

w_2 is the gross weight, expressed in grams, after test; and

t is the test time period, expressed in days.

C.2.4 The containers are acceptable if the average leakage rate is not more than 3.5 % of the initial declared weight per year, and if none of the containers shall has a leakage rate greater than 5 %. If the latter is not met, the test is repeated on additional 24 containers. The lot is then acceptable provided that not more than 2 of the 36 test containers leak more than 5 % and none of the containers leaks more than 7 % of the initial declared weight per year.

Annex D

(normative)

Method for the determination of particle size of insecticidal aerosol

D.1 Outline of the method

The aerosol spray is released into a chamber and the droplets allowed to settle onto microscope slides coated with magnesium oxide. An optical microscope is used to count and size holes made in the oxide coating, and the mass distribution of the spray is calculated from the results.

D.2 Apparatus

A convenient form of apparatus is cylindrical chamber about 600 mm in diameter and 2 m high, mounted on a small table. Its dimensions and shape are not critical provided that there is no impingement of the spray on the top or walls as it is released. The table has a sliding door, about 100 mm square, in its centre, through which the spray may be introduced. The chamber is arranged so that the door is at the centre of its base and the edges are sealed to the table in order to prevent draughts.

D.3 Procedure

D.3.1 Coat 3 microscope slides (76 mm x 25 mm), with magnesium oxide, by holding them in the smoke from burning magnesium ribbon. The coating should be uniform and rather thicker than the diameter of the largest drop expected. About 150 mm of 3 mm ribbon per slide is sufficient for most purposes. Place the coated slides symmetrically around the trap door about half way between it and the walls of the chamber. Bring the apparatus and the aerosol dispenser to a temperature of 20 – 25 °C and release the spray vertically upwards through the trap door. Impinge the start and finish on the underside of the table to eliminate end effects as the valve is opened and closed. A spraying time of between 1 S and 3 S usually gives a satisfactory deposit on the slides but this may be varied within wide limits without detriment to the sample. Close the door and allow the droplets to settle onto the slides for 2 h.

D.3.2 After the sample has been collected withdraw the slides from the chamber, and measure between 100 and 120 holes in the magnesium oxide coating of each slide, by means of an optical microscope. An image shearing eyepiece, or an eyepiece graticule, may be used for making the measurements. No corrections shall be applied to the measurement; it is assumed for the purposes of this standard that the size of the holes in the magnesium oxide are equal to the diameters of the droplets making them. Combine the measurements from each of the 3 slides to give overall totals. The mass median may be obtained either by converting the results to a cumulative mass distribution curve and presenting them on logarithmic-probability graph paper, or by other convenient means.

D.3.3 Take the arithmetic mean of 3 replicate determinations as the mass median of the spray.

Annex E

(normative)

Determination of internal pressure of aerosol

E.1 Apparatus

E.1.1 Pressure gauge, with a range from 0 kPa to 1 400 kPa.
E.1.2 Constant-temperature water-bath, capable of being maintained at (26 ± 2) °C, at least 250 mm deep and 200 mm wide with a suitable stirring device.

E.2 Procedure

E.2.1 Pre-pressurize the gauge with compressed gas to a pressure 30 kPa higher than the expected pressure in the container to determine if the assembly is gas tight. If the gauge pressure remains constant, the assembly is sufficiently gas tight.

E.2.2 Place 3 aerosols in the water-bath with water level just below the top of the valve stem and temperature at (26 ± 2) °C.

E.2.3 When the aerosols remain in water-bath with constant temperature of (26 ± 2) °C for 30 min, place the pressure gauge on top of the valve stem and press down firmly to open the aerosol valve and record down the pressure reading from the gauge.

E.2.4 Repeat F.2.3 for the 2 additional aerosols and take the average result.

E.3 Result
Record the average pressure obtained in F.2.4, expressed in kPa, as the internal pressure of an aerosol being tested.

Annex F

(normative)

Testing of valves for clogging

F.1 Apparatus

F.1.1 Fume hood.

F.1.2 Protective clothing and mask.

F.2 Procedure

Shake the aerosol dispensers thoroughly and keeping them in an upright position, disperse the contents of each into the fume hood until empty. Examine the valves for clogging.

Annex G

(normative)

Sampling

G.1 General requirements

G.1.1 Samples shall be stored in such a manner that there is no deterioration of the material.

G.1.2 The sampling instrument shall be clean and dry.

G.1.3 Samples shall be protected against contamination.

G.2 Sampling, testing and acceptance

G.2.1 For any consignment, the master cartons containing containers of the same type shall constitute a lot.

G.2.2 Samples shall be drawn from each lot and individually tested to ascertain whether the material complies with the specified requirements.

G.2.3 Any sampling failing to comply with the specified requirements shall be termed as defective. The acceptance number shall be the maximum number of defective samples permissible for a lot to be accepted.

G.2.4 Table H.1 shows the number of containers to be drawn from the lot and the acceptance number. However, in the events that a bigger number of samples is required to perform the tests, the number of containers to be sampled should be increased accordingly.

Table G.1 – Sampling lot

Total number of containers in one lot	Minimum number of containers to be sampled	Acceptance number
300 or less	3	0
301 to 1 200	6	1
1 201 to 2 000	13	2
2 001 to 7 200	21	3
7 201 to 15 000	29	4
15 001 to 24 000	48	6
24 001 to 41 000	84	9
above 42 000	126	13

G.2.5 Each of the containers to be tested shall be drawn from a different master-carton which shall be selected at random. In order to ensure randomness of selection, random number tables shall be used. If such tables are not available, the following procedure may be adopted:

Starting from a master-carton, count the master-cartons as 1, 2, 3 ... r in a systematic manner. Every/carton shall be drawn, r being the integral part of N/n, where N is the total number of master-cartons in the lot and n the number of master-cartons to be selected.

G.3 Preparation of test samples

Sufficient samples are randomly taken from each individual box of a reduced sample for examination for compliance with physical and chemical requirements.

Bibliography

[1] TZS 61-2: 2016 *Aerosols — containers and products — Part 2: Household aerosols against flying and crawling insects — Specification*

[2] KS 653:2017 *Household insecticidal aerosols —Specification*

[3] Manual on development and use of FAO and WHO specifications for pesticides. (1st Edition, 2016)

